

WHAT IS CLAIMED:

- 5 1. A headering arrangement for a heat exchanger for use in automotive applications, comprising:
  - a heat exchanger body ;
  - a heat exchanger tank;
  - a header;
- 10 a tube extending from the heat exchanger body and passing through the header;
- a tank foot at the end of the heat exchanger tank;
- a tank to header sealing gasket; and
- a collar,

15 wherein the gasket is essentially coplanar with the header and wherein the collar is situated at the area of passage of the tube through the header.

- 20 2. A headering arrangement for a heat exchanger as in claim 1, wherein the collar acts as a structural feature or rib.
3. A headering arrangement for a heat exchanger as in claim 1, wherein the gasket is essentially flat.
- 25 4. A headering arrangement for a heat exchanger as in claim 3, wherein the gasket is cured in place.
5. A headering arrangement for a heat exchanger as in claim 2, wherein the collar height is proportional to header thickness, tube slot width and tube pitch.

6. A headering arrangement for a heat exchanger as in claim 5, wherein the collar height is at least one and one half times the header thickness.
6. A headering arrangement for a heat exchanger as in claim 4, wherein the tank to header sealing gasket and the tank foot are retained within the collar.
7. A headering arrangement for a heat exchanger as in claim 6, wherein the collar is an upturned collar.
- 10 8. A heat exchanger as in claim 7, wherein the heat exchanger is used in high or extreme pressure internal operating environments.
9. A headering arrangement for a heat exchanger for use in automotive applications, comprising:
  - 15 a heat exchanger body part;
  - a heat exchanger tank part;
  - a header;
  - a tube extending from the heat exchanger body part;
  - a header pan at the end of the tube;
  - 20 a tank foot at the end of the heat exchanger tank part;
  - a gasket;
  - wherein the pan is a flat pan comprising at least one collar.
- 25 10. A headering arrangement for a heat exchanger as in claim 9, wherein the tube extending from the heat exchanger body has a length of less than or about twice the thickness of the header plus the tank foot width of the header.
11. A headering arrangement for a heat exchanger as in claim 10, wherein the header pan further comprises at least one flat medallion.

12. A headering arrangement for a heat exchanger as in claim 11, wherein the at least one collar is inverted vis a vis the line of extension of the tube.
13. A headering arrangement for a heat exchanger as in claim 12, wherein the 5 gasket is basically flat in shape.
14. A heat exchanger as in claim 13, wherein the heat exchanger is used in high or extreme pressure internal operating environments.
- 10 15. A method of making a headering arrangement for a heat exchanger with a flat header comprising the steps of:
  - stamp a metal sheet using a stamping tool;
  - maintaining flatness of the plane of the header during the stamping step;
  - providing a gasket between the tank foot and the gasket flange;
- 15 providing a crimp tab to retain the tank foot between the gasket flange and the outer flange;
- scoring the tab at the appropriate position to allow it to retain the tank foot; and
- crimping the tab at the appropriate position;
- 20 whereby the resultant headering arrangement has the gasket essentially coplanar with the header plane.